


Applicant : Jianshe Tang, et al  
Serial No. : 09/611,247  
Filed : July 7, 2000  
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Attorney's Docket No.: 05542-390001 / 3899/CMP

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

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1. (Previously Presented) A carrier head, comprising:  
a retaining ring;  
a pressurizable chamber; and  
a fluid-tight flexible membrane with an inner surface that forms a boundary of the pressurizable chamber and a rough outer surface to press a substrate against a polishing surface, wherein the outer surface is rougher than the inner surface.
  2. (Previously Presented) The carrier head of claim 1, wherein the outer surface of the flexible membrane is sufficiently rough that the substrate does not move relative to the membrane.
  3. (Original) The carrier head of claim 1, wherein the flexible membrane is formed of a material having a high friction coefficient.
  4. (Previously Presented) The carrier head of claim 1, wherein the outer surface of the flexible membrane includes features to increase its friction coefficient.
  5. (Previously Presented) The carrier head of claim 1, wherein the friction coefficient of the outer surface of the flexible membrane is sufficiently high that the substrate does not move relative to the membrane during polishing.

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6-8. Cancelled.

9. (Previously Presented) A carrier head, comprising:  
a retaining ring;  
a pressurizable chamber; and  
a flexible membrane to press a substrate against a polishing surface, the flexible membrane including an inner surface that forms a boundary of the pressurizable chamber and an outer surface having surface features to increase a friction coefficient of the outer surface, wherein the outer surface is rougher than the inner surface.

10. (Original) The carrier head of claim 9, wherein the flexible membrane is formed of a material having a high friction coefficient.

11. (Currently Amended) ~~The carrier head of claim 9~~ A carrier head, comprising:  
a retaining ring;  
a pressurizable chamber; and  
a flexible membrane to press a substrate against a polishing surface, the flexible membrane including an inner surface that forms a boundary of the pressurizable chamber and an outer surface having surface features to increase a friction coefficient of the outer surface, wherein the outer surface is rougher than the inner surface.

wherein the outer surface of the flexible membrane is roughened to increase its friction coefficient.

12. (Previously Presented) The carrier head of claim 9, wherein the friction coefficient of the flexible membrane is sufficiently high that the substrate does not move relative to the membrane.

13. (Currently Amended) ~~The carrier head of claim 9~~ A carrier head, comprising:

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a retaining ring;  
a pressurizable chamber; and  
a flexible membrane to press a substrate against a polishing surface, the flexible  
membrane including an inner surface that forms a boundary of the pressurizable chamber and an  
outer surface having surface features to increase a friction coefficient of the outer surface,  
wherein the outer surface is rougher than the inner surface,  
wherein the features are grooves.

14. (Currently Amended) ~~The carrier head of claim 9~~ A carrier head, comprising:  
a retaining ring;  
a pressurizable chamber; and  
a flexible membrane to press a substrate against a polishing surface, the flexible  
membrane including an inner surface that forms a boundary of the pressurizable chamber and an  
outer surface having surface features to increase a friction coefficient of the outer surface,  
wherein the outer surface is rougher than the inner surface,  
wherein the features are vias.

15. (Withdrawn) A method of assembling a carrier head comprising:  
abrading a flexible membrane to provide the membrane with a roughened surface;  
installing the flexible membrane in the carrier head in a position to apply pressure to a  
substrate.

16. Cancelled.

17. (Currently Amended) ~~The carrier head of claim 4~~ A carrier head, comprising:  
a retaining ring;  
a pressurizable chamber; and

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a fluid-tight flexible membrane with an inner surface that forms a boundary of the pressurizable chamber and a rough outer surface to press a substrate against a polishing surface, wherein the outer surface is rougher than the inner surface,

wherein the outer surface of the flexible membrane includes features to increase its friction coefficient and wherein the features are selected from grooves and vias.

18 - 24. Cancelled.

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